STEVAL-IFS014V1

Smart monitoring station based on the STM32F103xx and STMPE811

Data brief

Features

- Low data rate wireless (ZigBee®) implementation
- Displays multiple sensor parameters for itself and also the other wireless nodes associated to it in star network
- MEMS, temperature, resistive, humidity, light intensity sensors
- Manual or programmable control of nodes from the station
- TFT display with touchscreen menu navigation
- GUI for logged data reading, saving and analysis using graphs
- Rechargeable Li-ion battery. Operation possible without battery also using mini-USB to power up the system



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Description

The system, called smart monitoring station, is a handheld device which works as the hub for low data rate wireless network based on ZigBee® protocol to which all the nodes (smart monitoring nodes - STEVAL-IFS015V1) are connected. This system measures the temperature, humidity and light intensity and gathers information of various sensors (temperature, humidity, light intensity and MEMS) from nodes placed at different locations. It can also configure the alarm thresholds for the parameters of all the connected nodes, as well as for itself. Lights (or any other AC load) connected to nodes may be controlled through the smart monitoring station with addition of a few components and its status is available on the smart monitoring station display.

The system has a user interface with the graphic menu, color TFT display (240 x 320) and touchscreen. Data logging and analysis of logged data can be done using the GUI developed for this system.

This demonstration board can be powered up using 3.7 V Li-ion battery. Alternatively it can work with USB power without battery. When the battery is mounted, the same USB charges the battery and operates the system.

1 Circuits schematics

Figure 1. Power supply

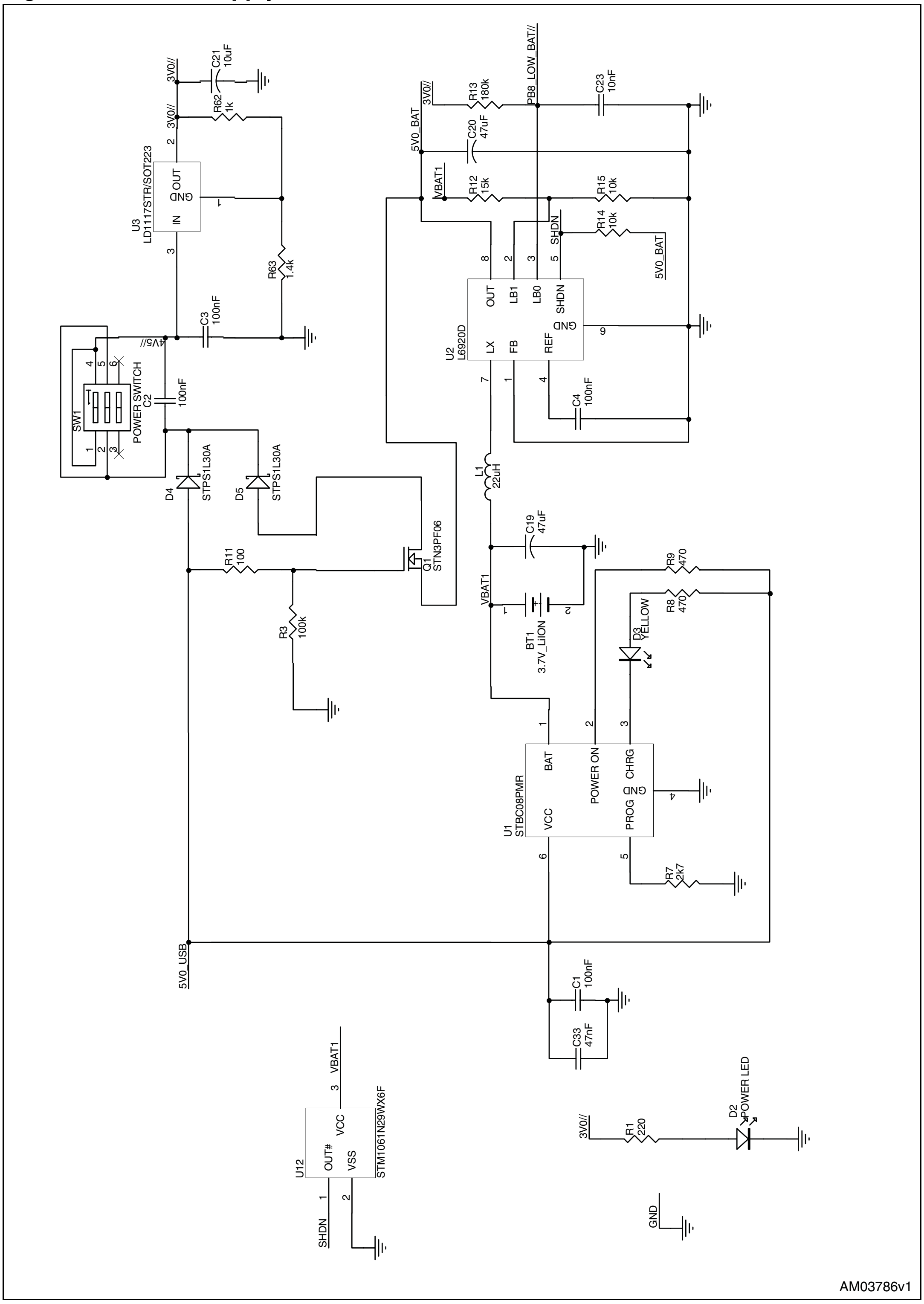


Figure 2. Connectors - ZiGBee®, microSD and JTAG

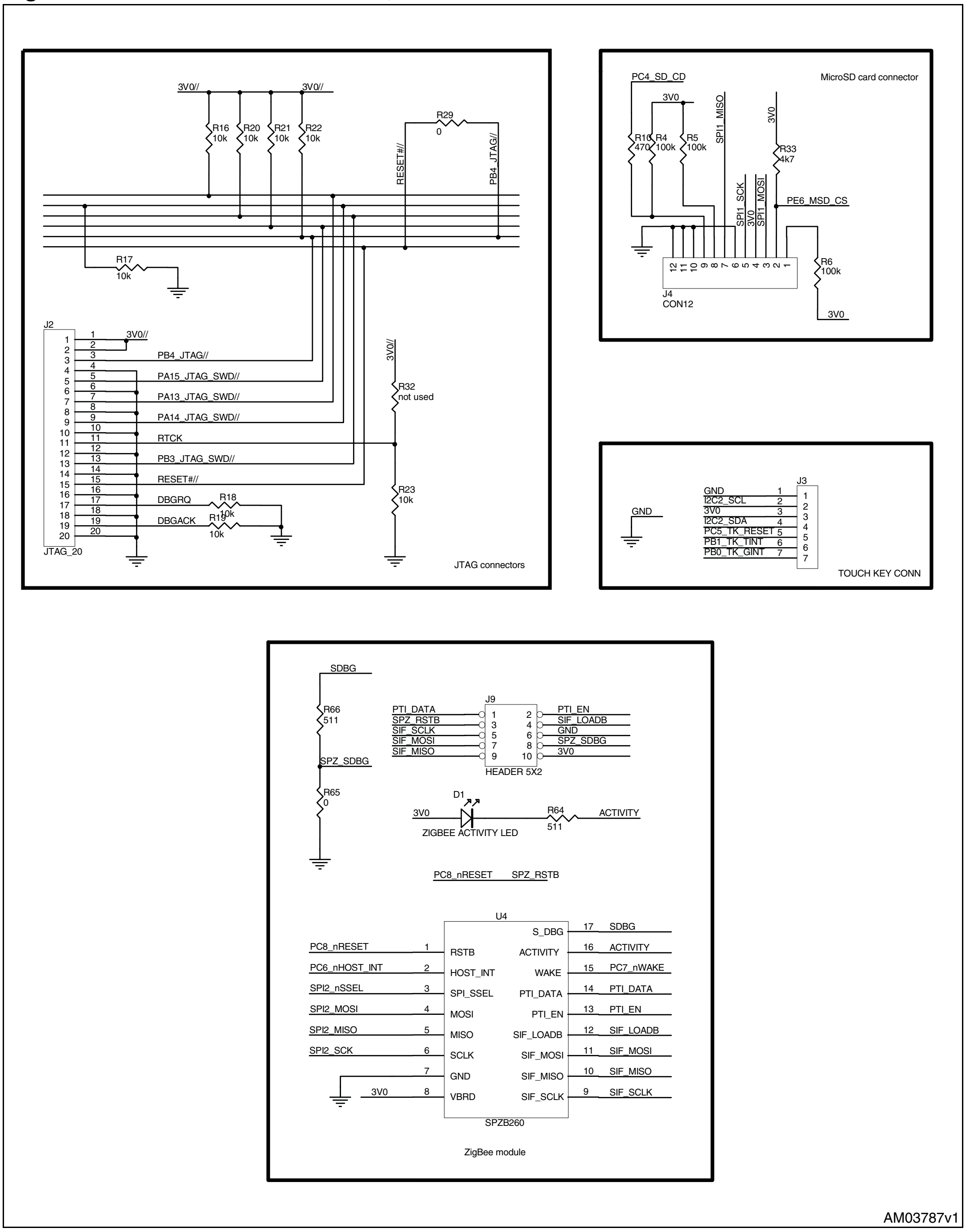


Figure 3. TFT displays, MEMS, memory and sensors

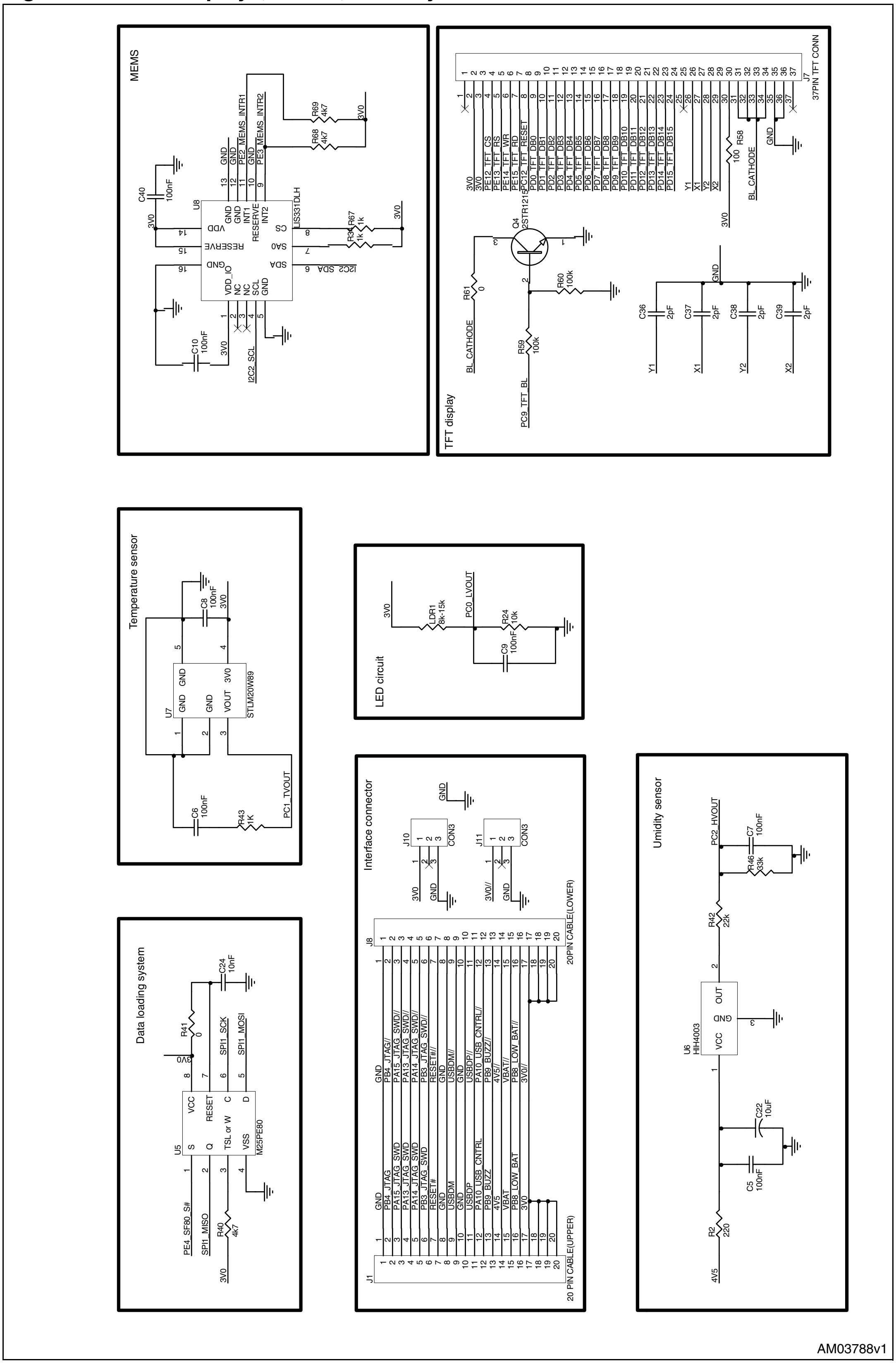


Figure 4. Microcontroller

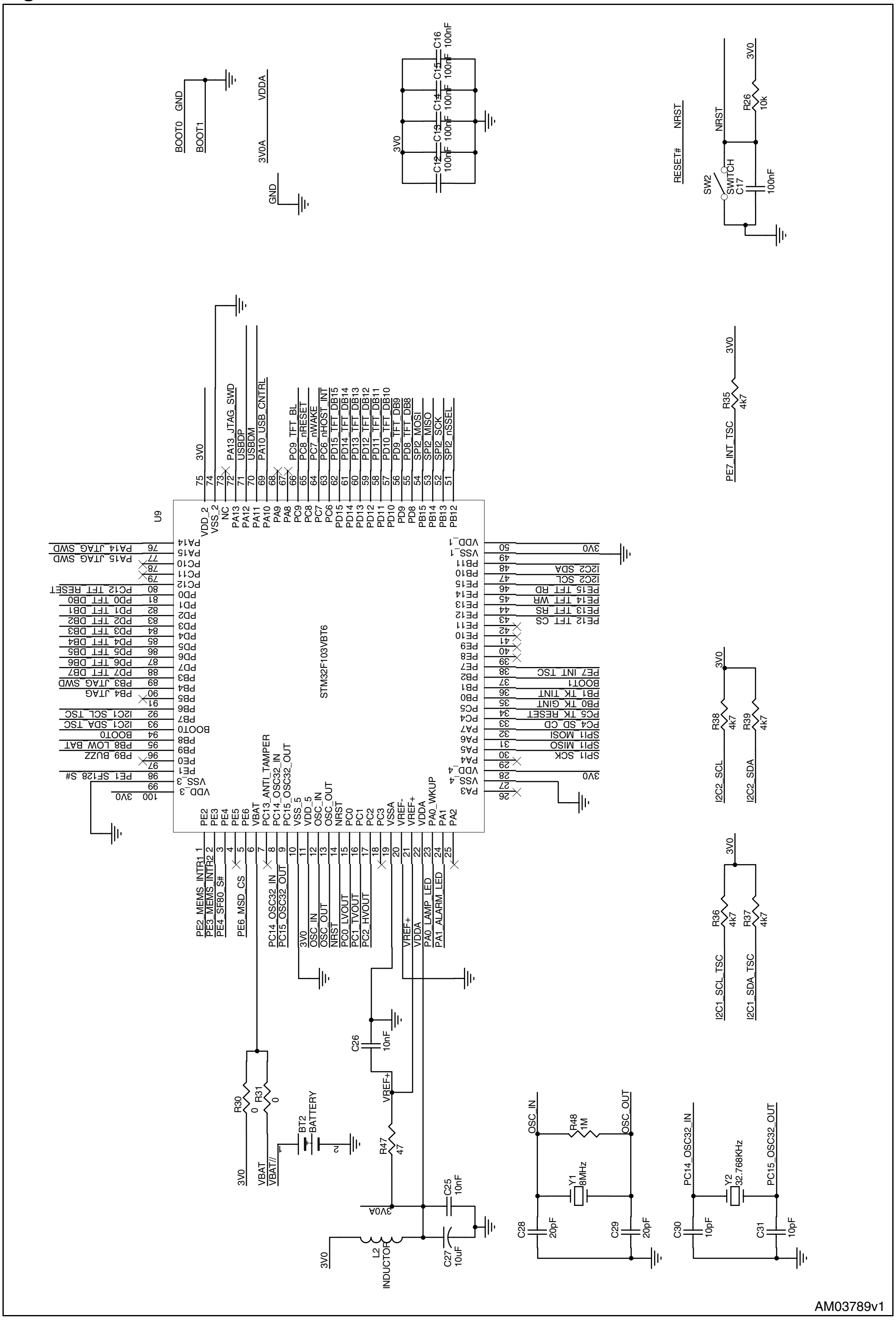
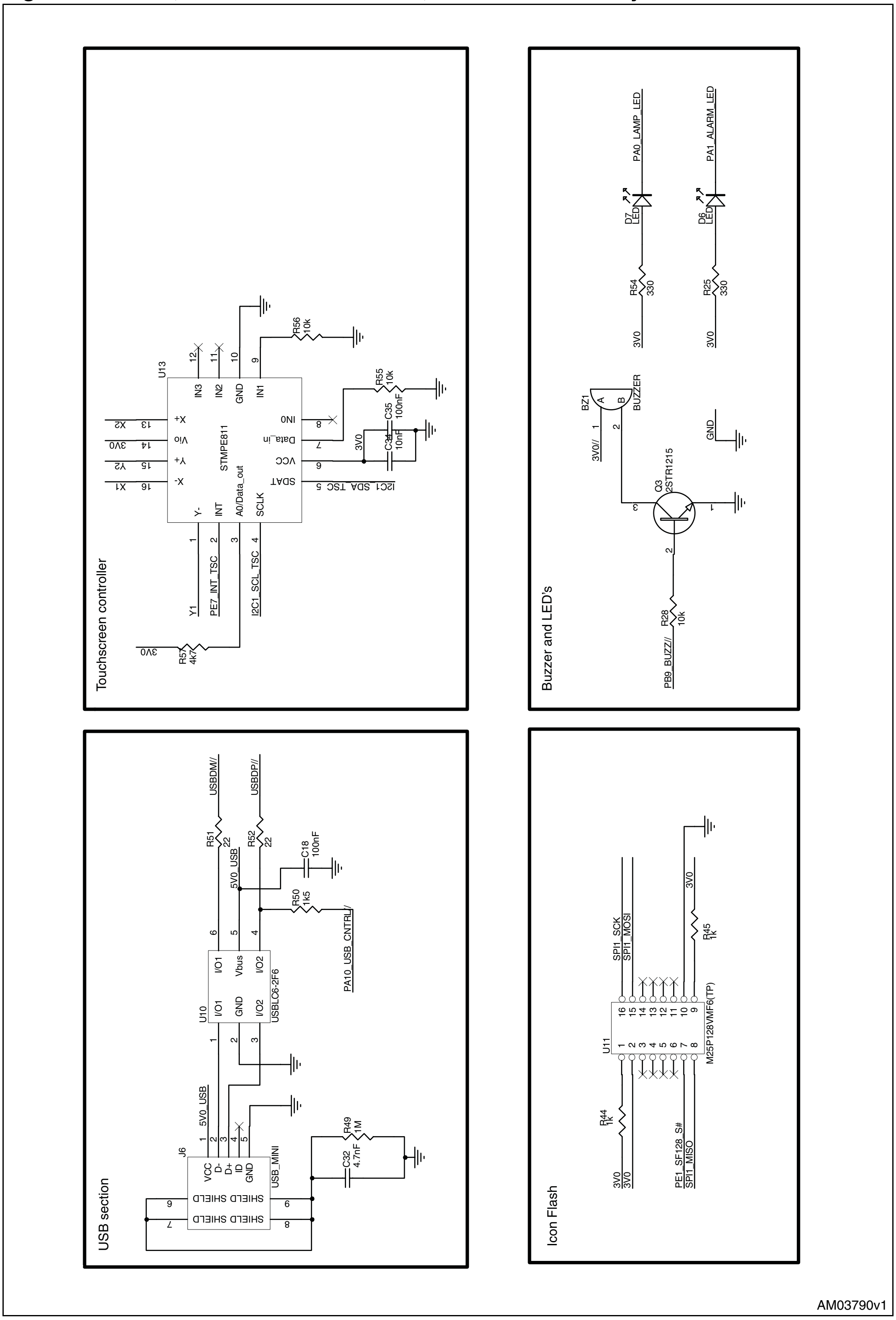


Figure 5. USB, touchscreen controller, buzzer and memory



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
14-Apr-2009	1	Initial release.